

$$m = 1.5 \text{ kg}$$
$$d = 5 \text{ m} \uparrow$$
$$\text{WORK} = ?$$

$$\text{Weight} = mg$$
$$(1.5 \text{ kg})(9.8 \text{ m/s}^2)$$
$$= 14.7 \text{ N} \downarrow$$
$$14.7 \text{ N} \uparrow = L$$

$$\text{WORK} = F_{\parallel} d$$

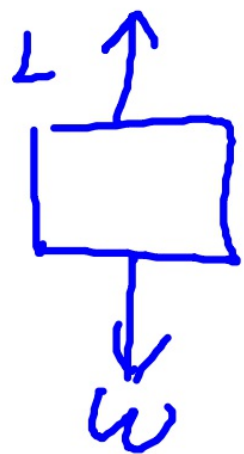
$$(14.7 \text{ N})(5 \text{ m})$$
$$\text{WORK} = 73.5 \text{ J}$$

How much Power did
FLUFFY Need to get to the
top of the tree if she
took 10 seconds?

$$P = \frac{\text{WORK}}{\Delta t} = \frac{73.5 \text{ J}}{10 \text{ s}}$$

$$P = 7.35 \text{ Watts}$$

2. $m = 30 \text{ kg}$
 $d = 5 \text{ m} \uparrow$



WORK = ?

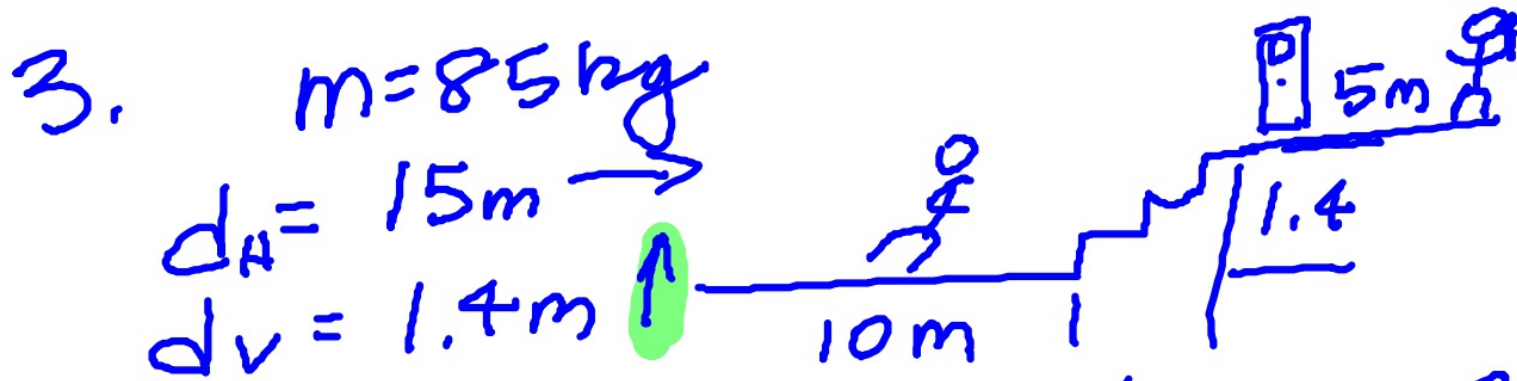
Weight = $mg = (30 \text{ kg})(9.8 \text{ m/s}^2)$
 $= 294 \text{ N} \downarrow$

LIFT = $294 \text{ N} \uparrow$

WORK = $F_{\parallel} d$
 $(294 \text{ N})(5 \text{ m})$

WORK = 1470 J
 $\Delta t = 20 \text{ s}$

Power? = $\frac{\text{WORK}}{\Delta t} = \frac{1470 \text{ J}}{20 \text{ s}} = 73.5 \text{ W}$



Weight of Bob $= mg = (85 \text{ kg} \times 9.8 \text{ m/s}^2)$

$833 \text{ N} \downarrow$

$833 \text{ N} \uparrow$



WORK $= F_{\text{net}} d$

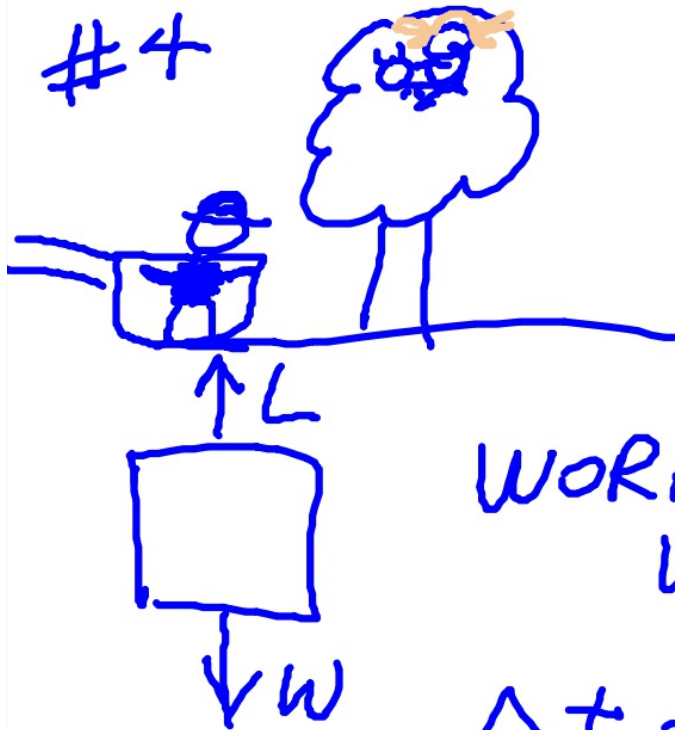
$= (833 \text{ N})(1.4 \text{ m})$

WORK $= 1166.2 \text{ J}$

$\Delta t = 2 \text{ s}$ to get up the Stairs

Power $= \frac{\text{WORK}}{\Delta t} = \frac{1166.2 \text{ J}}{2 \text{ s}} = 583.1 \text{ W}_{\text{avg}}$

#4



$$m = 105 \text{ kg}$$
$$d = 5 \text{ m}$$
$$\text{Weight} = mg = (105 \text{ kg})(9.8)$$
$$1029 \text{ N}$$

$$\text{Work} = F \cdot d = (1029 \text{ N})(5 \text{ m})$$
$$\text{Work} \Rightarrow = 5145 \text{ J}$$

$$\Delta t = 2 \text{ s}$$

$$\text{Power} = \frac{\text{Work}}{\Delta t} = \frac{5145 \text{ J}}{2 \text{ s}} = 2572.5 \text{ W}$$